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RECIPES FOR ANGER APPEALS: A SYSTEMATIC REVIEW

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RECIPES FOR ANGER APPEALS: A SYSTEMATIC REVIEW

THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Arts in the
College of Communication and Information
at the University of Kentucky

By

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2020

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ABSTRACT OF THESIS

RECIPES FOR ANGER APPEALS: A SYSTEMATIC REVIEW

Although there is an increasing use of anger appeals in communication research, scholars have yet to fully explore the causes of anger. Anger is elicited in situations where individuals perceive that their desired goals are blocked or needs are not fulfilled (Harmon-Jones & Harmon-Jones, 2016). Using Maslow's hierarchy of human needs model (Maslow, 1943), the current study aims to systematically review communication studies on anger appeals to synthesize and categorize the violations of goals/needs that have been studied or utilized to elicit anger. A comprehensive literature search was conducted in eight relevant databases: ProQuest Dissertation & Thesis Global, Web of Science Core Collection, Medline, Communication and Mass Media Complete, Educational Resources Information Center, PsycINFO, PubMed, and Psychology & Behavioral Sciences Collection. After the screening process, 32 articles were identified. I was able to obtain the stimuli from 27 articles, and these articles include 35 anger-inducing messages, which were coded in accordance with the different types of needs in Maslow's hierarchy. The results indicate that the violations of safety needs at the first dimension (e.g., physical security and health) and second dimension (e.g., justice, fairness, and morality) are frequently used in communication studies across a variety of contexts. Detailed analyses of messages are provided. Contributions and suggestions for future studies are discussed.

KEYWORDS: anger appeals, Maslow's hierarchy of human needs, causes of anger

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CHAPTER 1: INTRODUCTION

Communication scholars have long recognized the role of emotion in persuasion. For instance, Witte (1992) acknowledged the potential that fear, a negative-valenced emotion, has to change people's attitudes, intention, and behavior and developed the extended parallel process model. Results from Hullett's (2005) meta-analysis suggest that positive moods (e.g., happiness), when combined with strong persuasive arguments, have a positive effect on shaping people's attitudes. Turner (2007) focused on the power of anger to facilitate message processing, attitudes, and intention and proposed the anger activism model, which also places a strong emphasis on efficacy information.

Among all emotional appeals, anger appeals have been garnering more and more attention in persuasive health communication (e.g., Skurka, 2019a), political communication (Walter et al., 2019), advertising (e.g., Ilakkuvan et al., 2017; Kim & Niederdeppe, 2014), risk communication (e.g., Kim & Cameron, 2011), and crisis communication (e.g., Coombs et al., 2016). Results from a recent meta-analysis on anger appeal research (Walter et al., 2019) suggest that, when taking into consideration the effects of argument strength and efficacy information, anger appeals have a positive impact on persuasive outcomes. Despite the increasing use of anger appeals and the potential this approach has to positively influence persuasive outcomes, communication scholars have yet to fully develop the "recipe" for anger appeals, the causes of anger in particular. Understanding the causes of anger is necessary for the development of anger-evoking messages.

The cognitive appraisal approach is one theoretical approach that has been widely

applied to understand the causes of anger (Harmon-Jones & Harmon-Jones, 2007). This approach suggests that emotions are elicited by individuals' cognitive appraisals of the situation and that anger will be triggered by situations in which a person perceives that his/her goals are thwarted or needs are not fulfilled (Scherer, 2001; Skurka, 2019a). However, little is known about the types of goals or needs themselves. More precisely, which type of goals or needs, when thwarted or unfulfilled, have the potential to elicit anger remains a mystery.

To fill this gap, I aim to systematically review communication studies on anger appeals to synthesize and categorize the violations of goals and needs that have been studied or applied to evoke anger in people. The categorization of goals/needs is guided by Maslow's hierarchy of human needs model (Maslow, 1943). The results of this study will make a contribution to the literature on emotional appeals and inform message design scholars and campaign designers who are interested in using anger appeals.

CHAPTER 2: LITERATURE REVIEW

Anger

Anger is a discrete negative emotion. It is often invoked with the presence of goal- blocking obstacles or demeaning offences against individuals or their beloved (Nabi, 2002). Anger has the potential to direct individuals' attention to potentially consequential stimuli and serves adaptive functions (Walter et al., 2019). Anger can mobilize individuals' energy, and it regulates their psychological processes to help overcome the goal-blocking obstacles (Harmon- Jones & Harmon-Jones, 2016).

There seems to be an increasing use of anger appeals in communication research across a variety of contexts. In particular, in the context of health, scholars have been using anger- inducing messages to direct viewers' anger at big tobacco companies and industries to promote anti-tobacco attitudes and behaviors (e.g., Dillard & Nabi, 2006). These messages tend to portray the tobacco companies as manipulative, deceptive, and dishonest. Kim and Niederdeppe (2014) have compared the effects of different frames (anger-inducing frame vs. sadness-inducing frame) on viewers' emotional responses to antismoking messages. The results indicate that anger-inducing messages have the potential to increase viewers' perceived dominance of the speaker in the messages, which is negatively associated with attitudes toward smoking. In political contexts, Ryan (2012) has explored the relationship between anger and information seeking behavior. Participants in the anger-inducing condition were exposed to a combination of images and texts related to policies on public health care. The results of the study show that anger has the potential to increase information seeking behavior (operationalized as clicking through to a website). In risk communication, Kim and Cameron (2011)

compared the effects of an anger-inducing news frame and a sadness-inducing news frame on participants' information processing (heuristic vs. systematic) and their emotional responses to crisis news. The results indicate that, in the anger-inducing condition, participants read the crisis news less closely, and their attitudes toward the company were more negative.

Despite the increasing use of anger appeals in communication research, scholars have conflicting views with regard to the effectiveness of using these appeals in persuasive communication. Some scholars advocate this approach and suggest that anger is positively related to attitude change (e.g., Nabi, 1999), information processing, and behavioral intention (e.g., Kuhne & Schemer, 2015). Other scholars are concerned with the backfire and reactance this approach may cause unintentionally (e.g., Van Dijk et al., 2008). Because of the existence of the conflicting views, Walter et al. (2019) conducted a meta-analytical study of anger appeal studies to assess the effects of this approach on persuasive outcomes using four different theoretical models: the cognitive functional model, affective intelligence theory, the anger activism model, and the appraisal tendency framework. This meta-analysis takes into consideration the moderating effects of anger relevance, argument strength, and efficacy cues, all of which were derived from the aforementioned four models. The results of this analysis suggest that (a) in general, there is no significant relationship between anger and attitudes and intention, and the effect of anger on behavior is not very strong, but (b) positive attitudinal outcomes are associated with message-relevant anger, argument strength, and efficacy information. After discussing the results of the study, Walter et al. suggest that "it is of paramount importance to identify recipes for effective anger appeal implementation" (p. 88). I argue

that, like many other recipes, the first thing that needs to be identified in the recipe for anger appeal implementation is the list of ingredients (i.e., the causes of anger).

There are two dominant theoretical approaches that have been applied to understand the causes of anger: reinforcement approaches and the cognitive appraisal approach (Harmon-Jones & Harmon-Jones, 2016). Reinforcement approaches posit that angry emotions (e.g., frustration and anger) are a result of termination or omission of positive reinforcers (e.g., pleasant events; Harmon-Jones & Harmon-Jones, 2016) or blockage of a desired goal (Lewis, 1993). The cognitive appraisal approach suggests emotions are caused by individuals' cognitive appraisals or evaluations of a situation. Anger will be elicited if one's desired goals are blocked or needs are thwarted (Scherer, 2001; Skurka, 2019a). Despite the nuances between these two approaches, both of them advocate the idea that anger is elicited when individuals' goals are thwarted or their needs are not gratified. To my knowledge, however, little is known about the types of goals or needs themselves. In other words, what remains a mystery is the types of goals or needs, when thwarted, that have the potential to elicit anger. To fill this gap, the current study aims to systematically review anger appeal studies to synthesize and categorize the violations of goals and needs that have been utilized to evoke anger. The categorization is guided by Maslow's hierarchy of human needs.

Maslow's Hierarchy of Human Needs

First proposed by Abraham Maslow in 1943 as a theory of motivation, Maslow's hierarchy of human needs posits that humans are motivated to fulfill five different levels of needs: physiological needs (e.g., food and water), safety needs (e.g., security and health), belongingness and love needs (e.g., friendship and family), esteem needs (e.g.,

respect and freedom), and self-actualization needs (e.g., self-fulfillment; Maslow, 1943). This model is often illustrated as a pyramid with the physiological needs at the bottom and the self-actualization needs at the top (Gawel, 1997). Maslow (1943) suggests that these five levels of needs are activated in a hierarchical order and that among all these needs, physiological needs are the most important.

The development of the list of physiological needs (physiological drives) involves efforts from neurological and biological research, especially from homeostasis research. Homeostasis research focuses on the human body's automatic efforts to maintain and stabilize a normal state of blood flow. It deals with the water, salt, sugar, protein, fat, calcium and other minerals, vitamins, hormones, hydrogen-ion level (pH), oxygen, and constant temperature of the blood (Maslow, 1943, 1954). In accordance with these elements in the blood, the list of physiological needs includes food, water, air, and warmth, among others. By specifying the necessary elements needed in the blood, one can easily extend this list. However, Maslow (1943) explicitly points out that sensory pleasures (e.g., tastes and smells) should not be included in this list, probably because this list only deals with the needs for human survival.

Once the physiological needs are relatively well satisfied, a new set of needs will emerge (i.e., safety needs; Maslow, 1954). Safety needs can be interpreted from two directions. The first direction deals with the security and protection of one's body, health, and resources in emergencies such as wars, natural catastrophes, and disease outbreaks. The second direction focuses on stability and consistency. More specifically, Maslow (1954), using observations of children, argued that just like children and infants, adults in general prefer a safe, orderly, predictable, and organized world, and they try to avoid

unexpected, unmanageable, or dangerous events. Experiencing or witnessing injustice, unfairness, inconsistency, or immorality will thwart the needs of safety, not because they involve a physical threat but because they interfere with the order and structure of world, which makes the world look unreliable, chaotic, and unpredictable (Maslow, 1954). Thus, in situations where there is a violation of law or order, the needs for safety will be urgent (Maslow, 1954). In a similar vein, in order to gratify the second dimension of safety needs and have a stable and reliable life, individuals are motivated to find steady employment (e.g., a tenure-track position), purchase a variety of insurance, and have a savings account (Maslow, 1970).

The needs for love, affection, and belonging emerge after the gratification of the aforementioned two types of needs. The love needs involve giving and receiving love (i.e., love and be loved; Maslow, 1943). The list of love needs also includes friends, family, affectionate relations with people, intimacy, and a sense of belonging. These needs may originate from humans' animal tendencies to herd, flock, join, and belong (Maslow, 1954). Maslow later reframed love needs into the needs for gregariousness and affection-and-love relations (Maslow, 1970). Although love is often accompanied by sexuality, Maslow (1943) emphasized that love is not equivalent with sex and that sex may be regarded as a physiological need. Several recent studies agree with this statement (e.g., Thielke et al., 2012).

The fourth level of needs (i.e., esteem needs) deals with both self-respect and respect from others. Accordingly, these needs can be divided into two categories. The first category involves "the desire for strength, for achievement, for adequacy, for mastery and competence, for confidence in the face of the world, and for independence

and freedom,” and the second category includes the “desire for reputation or prestige (defining it as respect or esteem from other people), status, fame and glory, dominance, recognition, attention, importance, dignity, or appreciation” (Maslow, 1970, p. 45).

At the highest level, self-actualization needs usually emerge after the aforementioned four types of needs have been satisfied. This top level of needs refers to individuals’ desire for self-fulfillment and their tendency to reach their full potential (Maslow, 1943). For example, an artist has the tendency to create the best artwork after she has reached this level. Maslow (1962) suggests that individuals may find the meaning of their life while satisfying this level of needs.

When first proposed in 1943, Maslow’s hierarchy only had five levels of needs. Later, Maslow expanded this model and added cognitive needs, aesthetic needs (Maslow, 1970), and transcendence needs (Maslow, 1964; see Appendix A for Maslow’s eight-level hierarchy). Cognitive needs focus on human curiosity and cognitive impulses, and this type of need deals with the desire to learn, to know, to understand, and to explore (Maslow, 1970). Aesthetic needs refer to the needs for beauty, symmetry, closure, and system (Atkinson, 1993). Cognitive needs go above esteem needs, and aesthetic needs go above cognitive needs (Brown & Cullen, 2006). Transcendence needs refer to the need to “further a cause beyond the self and to experience a communion beyond the boundaries of the self through peak experience,” and these needs are considered to be higher than self-actualization needs (Koltko-Rivera, 2006, p. 303). After reaching this level, people have the tendency to help others self-actualize (Wong, 2016).

Many scholars have questioned the necessity of the hierarchical order in this model. In particular, Tracy (1986) argues that the hierarchy may not be applied to all

cultures, because in some collective cultures the wellbeing of the family is more prioritized than any individual needs. In other words, for individuals living in collective cultures, the love and belongingness needs come before the psychological needs and safety needs. In a similar vein, Sackett (1998) claims that some people may fulfill self-actualized needs without first gratifying the lower needs. Taylor (2009) suggests that this model should be illustrated as a three-legged stool instead of a pyramid. The three legs are the physiological needs, safety needs, and love and belonging needs, and the rest of the needs are on the top. Furthermore, the hierarchical order does not receive much support from empirical studies. Wahba and Bridwell (1976) did a comprehensive review of studies that applied Maslow's hierarchy. After reviewing the results from ten factor-analytic and three ranking studies testing Maslow's hierarchy, Wahba and Bridwell concluded that the hierarchical order is only partially supported.

Maslow's hierarchy of human needs has been widely used in different fields in social science, such as education (Fisher & Royster, 2016; Hale et al., 2019), counseling (Lee & Hanna, 2015), psychology (Shahrawat & Shahrawat; 2017), and management training (Jonas, 2016; Kiruja & Mukuru, 2013). However, very few studies have applied Maslow's hierarchy of human needs to research on anger (e.g., Zheng et al., 2016). To my knowledge, there is only one study that has directly assessed the relationships between the different levels of needs in Maslow's hierarchy and anger, anxiety, and depression (Saunders et al., 1998). The researchers surveyed 157 undergraduate students in this study and measured their need satisfaction using the basic need inventory scale developed by Lester (1990). This 50-item scale includes five subscales that measure the degree to which physiological needs, safety needs, love needs, esteem needs, and self-

actualization needs are gratified. These 50 items can be regarded as examples of different types of needs being satisfied or thwarted. As for the outcome variables, Saunders et al. operationalized anger as anger expression, and the results indicate that the gratification of each type of need is negatively correlated with anger expression.

Study Purposes and Research Questions

Guided by Maslow's hierarchy of human needs, the current study aims to systematically review how anger appeals have been designed in communication research across different contexts. More precisely, the goals of this review are (a) to examine and synthesize, from previous studies on anger appeals, the violation of needs that have been studied or applied to elicit anger, and (b) categorize these needs using Maslow's hierarchy of human needs model. The results of the study will help develop the recipes for anger appeals and provide message design scholars in different domains with an overview of the current stage of anger-evoking message design in terms of the message content and themes.

Although scholars have yet to fully explore whether Maslow's hierarchy of human needs can guide and inform the categorization of goals/needs thwarted in anger appeal studies, I, after thematically analyzing the anger-evoking messages in several studies, argue that this model is a good fit for the current systematic review. Specifically, Halperin et al. (2011) conducted two experiments, in the context of the Israeli-Palestinian conflict, to explore the moderating effects of hatred on the relationship between anger and compromises. In the first experiment, participants in the anger-inducing condition were exposed to a newspaper editorial that described "the Palestinians' general behavior throughout the negotiations as unjust and unfair" (p. 279). As mentioned before,

experiencing injustice, unfairness, and immorality violates one's safety needs at the second dimension (the desire for an orderly, consistent, and steady world). Moons and Mackie (2007), following and McCoy and Major (2003), used the violation of respect (i.e., insulting messages), among the level of esteem needs, to elicit anger in participants. In the context of health communication, Skurka (2019a) created a message that highlights the unfair and improper actions of soda companies and industries to induce anger in participants. The message describes the soda companies as deceptive and manipulative, violating one's needs for respect from others and the needs for fairness and justice. Last but not least, Mitchell et al. (2001) created a fictitious news broadcast to induce anger among participants (college students). The broadcast dealt with the parking rights on campus. Campus parking is one type of student resource, and the security of resources has been placed among the level of safety needs (Thielke et al., 2012).

As aforementioned, there are numerous theoretical and empirical criticisms of the hierarchical order of the Maslow's hierarchy, and this order has not been tested in the field of communication before. Thus, the current study will address this model merely as a framework for categorization. With regard to the need for recipes for anger appeals, the purposes of this study, and the model, the following research questions are proposed:

RQ1: What types of needs have been thwarted to elicit anger in studies on anger appeals?

RQ2: How have anger appeal studies in different contexts (health, political, risk, crisis, organizational, environmental, instructional) applied the violations of needs?

RQ3: Does the use of violations of certain types of needs to elicit anger differ

across contexts?

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CHAPTER 3: METHOD

Literature Search

The current study involves a systematic review. As aforementioned, Walter et al. (2019) conducted a meta-analysis to explore the relationship between anger and persuasion. Following Walter et al.'s literature search strategies and with help from a librarian, I conducted a comprehensive systematic literature search in eight relevant electronic databases: ProQuest Dissertation & Thesis Global, Web of Science Core Collection, Medline, Communication and Mass Media Complete, Educational Resources Information Center, PsycINFO, PubMed, and Psychology & Behavioral Sciences Collection. Search terms include discrete emotion, anger, emotional appeals, appraisal theory, negative emotions, conflict, retaliation, message design, and persuasion, as well as their derivations. The combinations of these words were used when appropriate. Articles ($k = 34$) examined in Walter et al.'s study were included as well. The initial literature search yielded 3,857 articles. After removing duplicates, there were 3,104 articles. Then I performed a screening process to identify the relevant articles and examined the reference lists of these relevant articles to locate other potential studies (see Appendix B for the flow diagram).

Screening Process

As mentioned above, I performed a screening process after the initial literature search. Another graduate student at Columbia University helped me with the screening process to increase the validity. Keeping the inclusion criteria in mind, we assessed the titles and abstracts of all articles ($k = 3,104$) from the initial literature search and excluded irrelevant articles. Disagreements were resolved through discussion.

Inclusion Criteria

The development of inclusion criteria is in accordance with the study purposes and is partially informed by Walter et al.'s (2019) study. To be included in this review, articles had to meet five inclusion criteria. First, the articles had to be related to communication (e.g., health communication, political communication, environmental communication, risk communication, etc.). Second, the studies needed to include an anger condition in which anger was purposefully elicited in participants. Thus, we excluded studies in which anger was induced incidentally (e.g., Aaroe, 2011). Third, the anger-inducing messages had to have been developed by the investigators. In other words, studies that used real-world stimuli or adopted messages created by other studies without making any changes or manipulations were excluded. Fourth, the study population needed to be at least 18 years old, which means studies focusing on how to invoke anger in adolescents and children were excluded. Finally, the studies must have indicated that the variable of interest is anger. In other words, studies on reactance (e.g., Kim et al., 2017) were not included in this review. After the screening process, we examined the reference lists of the articles included to locate other potential studies, which were examined with the aforementioned criteria accordingly. In total, 32 articles were identified.

Data Extraction

Many of articles identified do not provide enough details or appendices with regard to the anger-inducing messages. Thus, I reached out to the authors of these articles for a copy or a detailed description of the messages. In total, I was able to obtain the stimuli from 27 articles, and these articles involve 35 anger-inducing messages. Several

messages were not written in English, but the authors have provided the English translations. There is one message written in German, and the authors did not provide any translation. One graduate student that speaks German helped me translate the stimulus, and I used an online translator to double check. After obtaining the message stimuli, I started the coding procedure.

Coding Scheme

The unit of analysis is each anger-inducing message. Each message is coded for the following variables: (a) physiological needs, (b) safety needs (physical security), (c) safety needs (consistency), (d) belongingness and love needs, (e) esteem needs (self), (f) esteem needs (from others), (g) cognitive needs, (h) aesthetic needs, (i) self-actualization needs, (j) transcendence needs, and (k) other needs. For all coding variables, a score of “1” was assigned if the needs are thwarted in the message, and a score of “0” was assigned if not. Each message was also coded for the study context (i.e., health, political, risk, advertising, environmental, instructional, organizational, and crisis) and the message topic (e.g., anti-tobacco). For tracking and discussion purposes, coders were also tasked to write a one-sentence summary or several key words for each message coded.

The development of the codebook (see Appendix C for the codebook) is informed by Maslow’s articles (1943, 1954, 1970) and the scale developed by Lester (1990). Following Maslow, the physiological needs include water, food, sleep, air, shelter, warmth, and other elements that are necessary for human survival. The safety needs have two dimensions. The first dimension deals with the protection and security of one’s body, health, and resources. The second dimension focuses on stability and consistency. More precisely, if there is a violation of order, law, fairness, justice, or morality, or there is a

threat to one's steady employment, savings, or insurance in the message, this message is thwarting the safety needs at the second dimension. The scale developed by Lester adds one more item to this dimension: one's desire for nice routines in his/her life. The belongingness and love needs include the desire to love and be loved; a sense of belonging; affectionate relations with people, family, and friends; and intimacy. This type of need also involves one's desire to "have a few intimate friends on whom [he/she] can rely" (Lester, 1990, p. 1188). The esteem needs have two dimensions as well: self-esteem and esteem from others. The first dimension deals with the desire for confidence, freedom, independence, strength, adequacy, self-satisfaction, and competence. The second dimension involves the needs for reputation, fame, recognition, dignity, respect from others, glory, attention, dominance, status, and appreciation. The cognitive needs deal with cognitive impulses and human curiosity, and this type of need includes the needs to know, to understand, and to explore. The aesthetic needs involve the needs for beauty, symmetry, and order. The needs for self-actualization will be not gratified if the message conveys the idea that one cannot reach her or his full potential. The transcendence needs focus on one's desire to help others achieve their full potential.

Coders and Reliability

Two graduate students in the College of Communication and Information at the University of Kentucky coded each message independently. I served as one coder. The other coder was trained by me during multiple sessions, and we discussed meanings and pointed out nuances about the coding variables. Using percentage agreement, the intercoder reliability was assessed at the beginning of the coding. I used 16 articles for the training and to assess intercoder reliability. These 16 articles all involve anger-

inducing messages but failed to meet one of the inclusion criteria. The other coder and I established excellent intercoder reliability (overall exact agreement = 96.1%) for all variables: (a) physiological needs (98.3%), (b) safety needs (physical security; 94.8%), (c) safety needs (consistency; 91.4%), (d) belongingness and love needs (94.8%), (e) esteem needs (self; 91.4%), (f) esteem needs (from others; 91.4%), (g) cognitive needs (91.4%), (h) aesthetic needs (100%), (i) self-actualization needs (100%), (j) transcendence needs (100%), (k) other needs (100%), and (l) study context (100%). After establishing intercoder reliability, the other coder and I coded all of the messages ($k = 35$) in the final sample. We resolved disagreements through multiple discussions. Admittedly, Krippendorff's alpha is also a common measure for inter-coder reliability. However, there is an absence of violations of aesthetic needs, self-actualization needs, transcendence needs, and other needs, which means that for all messages used for the training and reliability test, when coded for these four variables, both the other coder and I assigned a score of "0." All "0"s produce zero variance. Krippendorff's alpha is very sensitive to the lack of variability, and using this measure to examine the reliability data with zero variance will yield $\alpha=0$ (Krippendorff, 2011). Because of the nature of Krippendorff's alpha and the lack of variability within the reliability data, I decide to use percentage agreement to assess the inter-coder reliability instead of using Krippendorff's alpha. To be clear, the lack of variability may not reflect coding instrument error or coder error. There is a difference between target variation and instrument variability: "the coding instrument is capable of varying but stay invariant with the invariant target" (Zhao et al., 2018, p. 6). In the context of this review, both the other coder and I assigned "0"s to all messages for the aforementioned four variables, not because we are not capable of

reporting presence of violation, but because there is indeed no violations of these needs.

CHAPTER 4: RESULTS

Overview

Basic descriptive tests were performed to give an overview of the results. In total, the current review includes 27 articles, which involve 35 messages. The oldest article was published in 1975 by Kaplan, and the newest article was published in 2020 by Turner et al., indicating a time span of 45 years. There are 13 political communication articles, and these articles involve 16 (45.7%) anger-inducing messages. Six articles are in the context of health and involve eight (22.9%) anger-inducing messages. Three articles are in the domain of organizational communication, and these articles include five (14.3%) anger-inducing messages. Two articles focus on risk communication and have three (8.6%) anger-inducing messages. There is only one article dealing with environmental communication and one studying crisis communication. Each of these two articles has one (2.9%) anger-inducing message. Finally, there is one article dealing with instructional communication, and this article has one (2.9%) anger-inducing message (see Table 1 for the context of each article).

Violations of Needs

The first research question is exploratory and asks what types of needs have been thwarted in messages to elicit anger. Frequency analyses were performed to answer this question. Among 35 messages examined in this review, 100% messages ($k = 35$) present a threat to one's needs for safety at the second dimension (i.e., the need for a consistent, reliable, and steady environment); 74.3% messages ($k = 26$) involve the violation of safety needs at the first dimension (i.e., the need to maintain the security of one's body, health, and resources); 45.7% messages ($k = 16$) prevent one from fulfilling the needs for

esteem from others; 28.6% messages ($k = 10$) present a threat to one's needs for belongingness and love (e.g., family); 22.9% messages ($k = 8$) thwart one's need for self-esteem; 11.4% ($k = 4$) messages involve a threat to one's cognitive needs; 8.6% messages ($k = 3$) prevent one from fulfilling the physiological needs (e.g., water and shelter); none of the messages violate the aesthetic needs, self-actualization needs, or transcendence needs. The average number of needs violated per message is 2.91 ($SD = 1.15$). Table 2 lists all of the articles and the violations their messages involve.

Violations of Needs in Different Contexts

The second research question aims to investigate how studies in different contexts have applied the violations of needs to evoke anger. To answer this question, I descriptively analyzed and critiqued all anger-inducing messages through the lens of Maslow's hierarchy (see Table 3 for each type of violation and examples). The following results present the analyses by context.

Messages from Political Communication Studies

As previously mentioned, 13 articles deal with political issues, and these articles involve 16 messages. The issues include voting behavior (Banks & Bell, 2013), road safety and distracted driving (Bruns et al., 2018, de los Santos & Nabi, 2019; Kuhne & Schemer, 2015), increasing tax (Desteno et al., 2004), crime (Goldberg; 1999), the conflict between Palestine and Israel (Halperin et al., 2011), economic cooperation (Lecheler et al., 2013), the conflict between development and conservation (Kim, 2016), domestic terrorism and juvenile crime (Nabi, 1998), illegal immigration (Ness et al., 2017), Syrian-American relations (Tagar et al., 2011), and domestic economic issues (Underhill, 2006). Among these messages, 16 messages violate the needs for safety

(consistency); 14 messages involve a physical threat to one's safety; six messages violate the needs for belongingness and love; five messages thwart the needs for esteem from others; three messages present a threat to participants' self-esteem needs; one message violates the cognitive needs; and none of the messages involve the violations of physiological needs, aesthetic needs, self-actualization needs, or transcendence needs.

Three articles (Bruns et al., 2018, de los Santos & Nabi, 2019; Kuhne & Schemer, 2015) deal with issues related to road safety and distracted driving. Each of them contains one anger-inducing message. Interestingly, all three messages violated the safety needs at both dimensions. However, the two messages from Kuhne and Schemer's (2015) study and Bruns et al.'s (2018) study also violated the needs for belongingness and love. Specifically, de los Santos and Nabi (2019) investigated the effects of anger on message processing, information seeking, and policy preference in the context of distracted driving. Anger was aroused by a story that features a mother being arrested for texting and driving while having her one-year old baby in her lap. The story indicates that when arresting the woman, the police also found a "2-year-old boy in an unsecured car seat and a 4-year-old girl who was not wearing a seat belt" (de los Santos, personal communication). The story also describes the reckless actions this driver has done in the past, including "not having insurance, not wearing a seat belt, not having a valid driver's license, driving with a missing license plate, not obeying traffic signals, not using child restraints, having defective lights, and having a defective windshield or rear window." By emphasizing the irresponsibility of this woman as a driver and a mother, this message showcases the violations of law, order, and morality. By highlighting the danger of texting while driving in the end, this message also presents a threat to the physical safety

of other people.

In a similar vein, the two messages from Kuhne and Schemer's (2015) study and Bruns et al.'s (2018) study also present a threat to the safety needs at both dimensions by describing tragic accidents caused by drunk driving. Kuhne and Schemer's message involves a depiction of a five-year-old child being killed by a reckless drunk driver (Kuhne, personal communication), and Brun et al.'s message describes a hit and run accident in which two people (one of them is a child) got killed and the drunk driver remained safe. Brun et al. also indicate that their message involves the "negligent homicide of innocent people," which "represents a violation of readers' value of social justice" (p. 12). The violation of justice, as discussed before, is thwarting the safety needs at the second dimension. In addition to the violation of safety needs at both dimensions, these two messages also showcase a threat to the children in the viewers' family by emphasizing the death of children in the accidents.

In the context of the Israeli and Palestinian conflict, Halperin et al. (2001) conducted two experiments to examine the potential that anger has to influence Israeli citizens' support for compromises in an upcoming negotiation between these two countries. Each experiment has one anger-inducing message, and these two messages both thwart the safety needs at the second dimension. Both messages, newspaper editorials, informed the participants (Israeli Jewish citizens) that the Palestinians are being unjust and unfair during the negotiation. In addition to the violation of safety needs at the second dimension, the message in the second experiment also describes the Palestinians as manipulative, deceptive, and ungrateful: "an official source within the Israeli delegation had said that the Palestinians repeatedly tricked and manipulated the

Israeli delegation ... in addition, according to the same source, despite Israel's generosity and willingness to compromise, the Palestinians did not offer any new compromises on their end” (p. 283). Such description entails that the Palestinians are being disrespectful to the Israeli citizens, thwarting the needs for esteem from others.

Tagar et al.'s (2011) study also focuses on the conflict between two countries (the United States and Syria). This study involves one anger-inducing message, which includes an anger-priming introductory paragraph and a four-minute-long video featuring a Muslim political leader giving a hostile public speech. The anger priming paragraph informs the participants (American students) that (a) the video they are about to watch contains content that violates Americans' core value and may make them angry and (b) most Americans indicate that they felt anger after watching the video. The speech in the video involves numerous safety-threatening and offensive words toward the U.S. government and American viewers, such as “Death to America.” Furthermore, the Muslim political leader made multiple unfair, disrespectful, and hostile comments about the United States, thwarting the needs for safety at the second dimension and the needs for esteem.

In the context of racial policies, Banks and Bell (2013) developed one anger-inducing message and one fear-inducing message to explore the influence of discrete emotions on undergraduate students' racial policy opinions. The anger-inducing message focuses on a mayoral election and mentions that a political candidate named Brian Alexander plans to decrease the number of police officers on the street despite the fact that there are numerous criminals in the city. Alexander's plan and the description about crime issues entail one contradiction and reflect an unsafe and less orderly environment,

violating one's needs for safety at the second dimension. Furthermore, the message indicates that two people were just assaulted by three criminals at a local public park, and the images of these three criminals were presented accordingly, presenting a threat to one's physical safety.

Nabi (1998) explored the effects of emotion types and expectation of message reassurance in the context of domestic terrorism and juvenile crime. This study involves two anger-inducing messages. The first message centers on the rising domestic terrorism. The message indicates that the terrorism is endangering the population and the terrorists are attacking "day care centers, women's health clinics, and churches" (p. 598), presenting a direct threat to the physical security of the viewers and their family, especially children. The message also highlighted the terrorists' immoral and illegal actions multiple times, actions which cause chaos in the world and violate one's needs for an orderly, organized, and safe environment. Furthermore, this message describes the terrorists as deceptive, tricky, and hypocritical by emphasizing their actions of attacking the government, Blacks, or Jews for problems they see while "[citing] the Constitution and the Bible to defend their actions" and "[rationalizing] the killing of innocent people" (p. 598). Such actions not only violate justice but also present a threat to the needs for esteem from others.

The second message in Nabi's study (1998) deals with juvenile crime. The message indicates that juvenile offenders are causing numerous incidents but they do not receive adequate punishment. The description about the crime and attacks presents a threat to the viewers' physical security, and the fact that the court and law do not punish the offenders accordingly entails injustice and unfairness ("courts' sentences do not do

justice to the crimes”; Nabi, 1998, p. 600). Interestingly, compared with the first message, the second message does not thwart the needs for belongingness and love and the needs for respect from others. Although the purpose of this review is not to establish a relationship between the number of types of needs violated and the message effects and there are other nuances between these two messages, it is worth mentioning that the second message led to a failed emotional induction.

All the anger-inducing messages analyzed above focus on one issue. However, the messages from Desteno et al.’s (2004) study and Underhill’s (2006) study involve multiple issues. Specifically, Desteno et al. explored the effects of anger on participants’ evaluation of a tax proposal in Boston. The anger-inducing message involves three issues: some individuals taking advantage of the healthcare system and using the resources for people who really need them, criminals escaping because of legal technicalities, and the growing size of traffic delays. The description of the first issue presents a threat to one’s health resources, and some people’s wrongly taking advantage of the healthcare system entails unfairness. The description of the second issue involves the violation of justice because the criminals are not receiving their punishment accordingly. The message also mentions that the legal technicalities are a result of police errors. The inability of the police to properly enforce the law makes Boston a less safe and less orderly place. The message does not provide enough information with regard to the traffic delay issue. What the message provides with regard to this issue is more like a one-sentence description.

Taking a similar approach, Underhill (2006) also selected multiple issues when developing an anger-inducing flyer: tuition, pollution, unemployment, and the rising cost

of fuel. The rising cost of tuition, with an image depicting the frustration of a student, thwarts the student participants' goal for seeking education and knowledge. The information with regard to the economic issues (e.g., unemployment) presents an unsteady environment, violating the safety needs at the second dimension. The negative impacts of the pollution, emphasized with an image of "a baby with birth defects related to the pollution" (p. 26), present a threat to the safety needs of the viewers and the babies and children in their family. This message also attributes these negative consequences to the inappropriate actions one governor has taken. The governor's inability and actions thwart one's need for an orderly and stable world.

Goldberg et al. (1999) explored how anger can influence people's attribution of responsibility, and the study involves two anger-inducing messages. The approach these scholars took to elicit anger is unique. The first anger-inducing message involves a four-minute video and some additional information that reflects injustice. In the video, a group of perpetrators bullies and beats a helpless teen at a public park, while the teen's friends are being bystanders during most of the time. The heartless beating and insulting words present a threat to the needs for physical security and entail injustice, unfairness, and immorality. The perpetrators in the video are being disrespectful, and their reckless actions and scornful abuse present a threat to one's freedom and independence. The bystander behavior of the teen's friends thwarts the needs for belongingness and love, because this type of needs includes one's desire to have friends on whom one can rely (Lester, 1990). Furthermore, along with the video, the participants were informed that the perpetrators in the video were "caught but escaped punishment because of a technicality" (p. 785). This information violates social justice again and reflects the problems existing

in the legal system, both of which thwart the safety needs at the second dimension. The second anger-inducing message involves the same video, but the information along with the video just indicates that there is no further information about what happens to the perpetrators later. The anger manipulation in Goldberg et al.'s study deals with (a) the immoral actions in the video and (b) justice, which is operationalized as the fate of the wrongdoer.

Kim (2016) tested the effects of anger and the amount of information on deliberation in the context of political communication, but the message focuses on a controversial issue on campus. The anger-inducing message, a mock newspaper article with a three-minute video embedded, depicts a fictitious conflict between the development of two university departments and conservation. Both departments are experiencing space problems and planning to destroy a campus reserve area. The message highlights the blameworthy actions of the wrongdoer by using words such as “very real sufferings” and “chop down” and visuals depicting environmental destruction and unruly demonstrations, entailing unfairness and immorality. Furthermore, the campus reserve is one type of student resource. With the strong use of visuals of the destruction to the reserve, the message presents a threat to security of participants’ (undergraduate students’) resources.

To explore the mediating effects of emotional response on the relationship between framing and policy support, Lecheler et al. (2013) developed four messages that aim to induce enthusiasm, contentment, anger, and fear separately. All of these messages focus on the economic cooperation between the European Union (EU) and Bulgaria and Romania, and the participants are students from a Dutch university. The anger-inducing

message describes the investments in Bulgaria and Romania and indicates that Dutch investors are frustrated by these two countries' economic performance. The message suggests that these two countries may bring negative consequences to the Dutch market, presenting a threat to the security of the viewers' financial resources. Furthermore, the message indicates that having Bulgaria and Romania as partners may cause damage to the European economic system and that this partnership may make dozens of job opportunities vanish, which thwart one's goal for having a stable environment and steady employment (safety needs at the second dimension).

Ness et al. (2017) investigated the potential that emotional appeals have on people's reactions to ideological websites. The anger-inducing message, in the format of a website, focuses on the issue of illegal immigration. The message highlights several inappropriate actions of illegal immigrants, such as "burglary and theft, drug-related crimes, and driving under the influence" (p. 506), thwarting the viewers' needs for physical safety. The message also emphasizes that it is not fair that the illegal immigrants are using public resources without paying taxes while the viewers are working hard and paying taxes. The sense of unfairness presents a threat to the needs of safety at the second dimension. According to the message, illegal immigrants also cause a problem for the employment situation. Because illegal immigrants are willing to work for a lower salary, thousands of job opportunities for Americans are vanishing and the wages are decreasing accordingly. Thwarting one's goal for steady employment and income is violating the needs for safety at the second dimension. Furthermore, the message highlights the inappropriateness of the actions the government has taken in response to the illegal immigration issue, violating the needs for justice and fairness again.

Messages from Health Communication Studies

As mentioned earlier, there are eight anger-inducing messages from studies on health issues. These health issues include negative health impacts of air pollution (Lu, 2019), wearing bike helmets (Mitchell, 1999), bone marrow donation (Mitchell et al., 2001), Ebola and respiratory syndrome disease (Na et al., 2018), anti-smoking (Sangalang et al., 2019), and childhood obesity (Skurka, 2019a). Among these messages, all eight violate the needs for safety at the second dimension; six involve a threat to one's physical safety; three violate the needs for belongingness and love; three thwart the needs for esteem from others; two present an offense to participants' self-esteem needs; one thwarts the physiological needs; and none of the messages involve the violation of cognitive needs, aesthetic needs, self-actualization needs, or transcendence needs.

The purpose of Lu's (2019) study is to investigate the role of incidental and integral emotions (anger and compassion) in message processing in the context of the negative health impacts caused by industrial pollution. The message Lu applied in the integral anger condition was examined in this review. This anger-inducing message includes a photo depicting industrial air pollution and texts indicating that the industries and factories are releasing toxic and harmful chemicals (Lu, personal communication). The photo and text together suggest that the industries are polluting the air and the pollutants they produced are threatening human health, thus thwarting the physiological needs and safety needs at the first dimension (i.e., the security of one's health). Furthermore, the texts in the message also depict the industries as heartless: damaging the air and human health for the purpose of maximizing profits. Such unethical and unfair actions violate the participants' needs for safety at the second dimension (i.e., the desire

to have a reliable, consistent, and orderly world).

Influenced by the anger activism model (Turner, 2007), Skurka's (2019a) study aims to investigate the effects of anger and efficacy on policy support and activism intention in the context of sugary soda drinks and childhood obesity. The anger appeal message suggests that soda industries' marketing and advertising efforts contribute to the rising childhood obesity in the United States and that children are vulnerable when exposed to carefully and strategically designed soda advertisements. This message also indicates that although there are laws prohibiting advertisers directly targeting at children under the age of 12, the soda companies would "suddenly attack them like a bunch of wolves" when they turn 12 (Skurka, 2019a, online supplement). Furthermore, this message suggests that, because the U.S. government considers marketing costs to be qualified for a tax deduction, soda companies "are churning a profit by pushing their sugary drinks on unsuspecting kids." By highlighting the soda companies' intentionally taking advantage of vulnerable children and the tax law, this message presents a threat to the children in the participants' family, morality, and law, thwarting the needs for belongingness and love and the second dimension of safety needs respectively. Last but not least, this message also emphasizes that the soda companies are "strategically" disguising their marketing efforts and intent, depicting the companies as deceptive and manipulative, which entail disrespectfulness and injustice. Thus, this message thwarts the needs for esteem from others and the safety needs at the second dimension again.

Mitchell (1999) and Mitchell et al. (2001) took a different approach to investigate the effects of anger on persuasive outcomes. In both studies, participants (college students) were first exposed to anger-inducing messages focusing on university policies

about exams and parking issues, and then they were asked to read persuasive arguments promoting bone marrow donation and wearing bicycle helmets. In other words, in both studies, anger was not aroused in direct response to the persuasive messages.

The anger-inducing message in Mitchell's study (1999) describes a fictitious policy released by Michigan State University (MSU). This fake policy requires all undergraduate students to take a comprehensive exam before their graduation. According to the policy, if the students fail the exam, they will need to take another course to prepare them to take the exam again. Students who fail twice will not be able to graduate. This message also involves some insulting quotes from a MSU administrator and a trustee. These quotes describe MSU students as "lazy," "unprepared," and an "embarrassment" to the university (p. 13), violating the needs for esteem at both dimensions. This policy entails unfairness and thwarts the safety needs at the second dimension. Furthermore, the message presents the MSU community as unfriendly and hostile, and thus prevents students from developing a sense of belonging.

Using a similar procedure, Mitchell et al. (2001) created a four-minute long video about parking issues on campus to induce anger in participants and then expose them to messages promoting bone marrow donation. This video informed participants (college students) that their parking rights on campus will be directly taken away, showing no respect to the students. Campus parking is one kind of student resource, and a threat to resources is thwarting the safety needs at the first dimension.

Sangalang et al. (2019) investigated the effects of emotional corrective endings (anger, sadness, happiness, and fear) in combating misinformation in narrative stories about tobacco use. The narrative story is about a female former smoker having a date

with a male smoker Eric (Sangalang et al., 2019, online supplement). During the date, Eric recommended organic tobacco to the woman and promised that the organic tobacco is healthy. The woman believed Eric and tried the organic tobacco. In the anger-inducing corrective ending, the woman found out what Eric said is misinformation, and she believed that Eric was also deceived by the false information provided by the tobacco company. The woman felt very used and was angry at these intentionally deceptive tobacco products, which indicates that tobacco companies are being unfair, unethical, and disrespectful. The woman could not believe that the organic tobacco and the misinformation made her abandon the efforts she had put into quitting smoking and “pull people like [her] back into smoking,” presenting a threat to one’s independence. The organic tobacco and this incident also make the woman question her relationship with Eric, thwarting the needs for love. Furthermore, this message describes the correct health information (negative health impacts) of tobacco use, violating one’s needs for health, which belongs to the first dimension of safety needs.

Na et al.’s study (2018) explored the role of anger in rumor evaluation in the context of Ebola and a viral respiratory illness. This study involves three anger-inducing messages (one about the death of an Ebola patient and two about the spreading of the respiratory illness). Interestingly, through the lens of Maslow’s hierarchy, these three messages involve the violations of the same types of needs: safety needs at both dimensions (physical security and consistency). More specifically, the first message describes an Ebola victim’s case in the United States and attributes the death of the victim to mishandling by the hospital. The message accuses the hospital for misdiagnosing the patient’s condition and criticizes it for its multiple “explanations” (Na

et al., 2018, online supplement). By highlighting the hospital's irresponsibility and mismanagement, the message depicts the hospital and the healthcare system as unreliable, violating the needs for safety at the second dimension. Furthermore, the severe consequences of Ebola embedded in the message presents a threat to the viewers' physical health.

In order to develop the second and third anger-inducing messages, Na et al. (2018) created a fake pandemic named New Respiratory Syndrome (NRS). Both messages describe how the U.S. government and healthcare system respond to this pandemic and how their mismanagement and inability contribute to the spread of this disease. More specifically, the second message involves doctors' quotes blaming the government for "not doing its job," "covering up important information," and "making it harder for the medical community to manage this pandemic" (Na et al., 2018, online supplement). The message also indicates that because of the government's covering it up, there has not been any lab tests done to understand the virus. The improper actions the government has taken violate one's need for a safe, orderly, and reliable world, and the description about the pandemic is definitely threatening the security of one's health. In a similar vein, the third message emphasizes President Trump's inability and inappropriate actions in response to the NRS outbreak, violating the safety needs at both dimensions (Na et al., 2018, online supplement).

Messages from Organizational Communication Studies

Five messages were constructed in the context of organizational communication, and all of these messages focus on issues related to university policies. Among these messages, five messages thwart the needs for safety at the second dimension; five

messages prevent one from fulfilling the needs for esteem from others; four messages involve the violation of safety needs at the first dimension; two messages involve an offense at one's self-esteem; two messages violate the cognitive needs; one message presents a threat to one's physiological needs; and none of the messages involve the violation of belongingness and love needs, aesthetic needs, transcendence needs, and self-actualization needs.

Guided by the anger activism model, Turner et al. (2007) conducted two studies to investigate the effects of anger and efficacy on college students' attitudes, perceived message persuasiveness, cognitive processes, and intention to take actions in response to the university issues involved in the messages. Turner et al.'s study has three anger-inducing messages: one dealing with rioting after sports games and two focusing on parking issues. The first anger-inducing message indicates that because several people acted inappropriately at a previous celebration for sports games, the university administration is planning on restricting future celebrations. Turner et al. described in detail the underlying rationale for why this message would successfully induce anger and indicated that this message includes nine anger-inducing themes:

(1) ego of extended selves (all the U of X students are affected); (2) systems failure (the university failed to react appropriately); (3) interruption of routine activities (rioting caused destruction to the normal course of celebration); (4) ego-threat (students who rioted were called morons); (5) violation of social norms (people should not be hurt at celebrations); (6) discrimination (everybody will be punished regardless of whether or not they participated in the riot); (7) injustice (students have a right to celebrate and now it is being taken away); (8) damage or

loss to self (students are being limited in the ways that they are allowed to celebrate the win of their sports teams); and (9) ignorance (people who do not know the facts about the riot are ignorant). (p.10)

The themes related to the ego of extended selves, ego-threat, and loss to self violate the needs for esteem at both dimensions. The themes about system failure, violation of social norms, discrimination, and injustice correspond to the safety needs at the second dimension. As mentioned before, the safety needs at the second dimension also involve one's desire for nice routines in the life. Thus, the interruption of routine activities theme presents a threat to the safety needs at the second dimension. The message does not reflect the last anger-inducing theme (ignorance), and the operationalization of this theme may be problematic.

In a similar vein, the second and third anger-inducing messages in Turner et al.'s (2007) study also violate the safety needs at the second dimension and the needs for esteem from others. What differs is that the second and third messages, because of the focus on students' parking rights, also present a threat to the security of participants' resources, violating the safety needs at the first dimension. It is worth mentioning that although the second and third messages have the same message topic and involve the violations of the same types of needs, these two messages violate the needs in different ways. More specifically, both messages violate justice and fairness, but the second message entails injustice and unfairness by indicating that "parking spots are not distributed fairly" (p. 18), whereas the third message does so by suggesting that "students are poor, so family members often have to pay for parking tickets and that's unfair" (p. 19). As for the violation of esteem needs from others, the second message indicates that

the university is being deceptive and “oversells parking permits by 20%” (p. 18), whereas the third message describes the rude actions of the parking officials to students.

Deceiving students and being rude thwart the need for fairness again.

Also guided by the anger activism model, Turner et al. (2020) examined the three-way interaction effects between anger, efficacy, and argument quality on systematic processing and persuasive outcomes. This study involves one anger-inducing message. When developing the message, Turner et al. selected a university policy, the Good Samaritan Policy, as the topic, because it is relevant to the participants (college students). This policy allows students to ask for medical help from the university while engaging in illegal activities, which means that students do not need to hesitate to seek help in life-threatening accidents caused by use of alcohol or other drugs. The message details a fictitious story, in which the university violates the Good Samaritan Policy and punishes an underage drunk student who asked for help on behalf of his drunk friend. The university’s breaking promises and not following the Good Samaritan Policy thwart the viewers’ goal for having a consistent, reliable, and predictable environment. The message also highlights that the university was being rude and disrespectful to the student: “university officials ripped away the [University] sophomore’s student status and subsequently kicked Berger out from living in an on-campus residence” (p. 19). Such actions not only violate one’s needs for respect from others but also entail unfairness, thwarting the needs for safety at the second dimension again. Furthermore, being kicked out from the residence hall presents a threat to one’s need for shelter (physiological needs), and the loss of student status keeps one from fulfilling the needs for education and knowledge. Last but not least, because the university is not following the Good

Samaritan Policy, students have no one to ask for help in life-threatening situations, presenting a threat to the safety needs at the first dimension.

Kaplan (1975) developed an anger-inducing message to explore the effects of anger arousal, expression type, and message destination on aggressive drive. The message involves a letter dealing with the funding for students at California community colleges, and the participants are students from a California community college. This letter suggests that students at the community colleges are “stupid, irresponsible, and not worthy of free education” (p. 198). The insulting words embedded in the letter thwart one’s need for esteem at both dimensions and entail unfairness. Keeping students from getting the funding presents a threat to the viewers’ financial resources, hence violating the needs for safety at the first dimension. In addition, preventing one from seeking education and acquiring knowledge also thwarts one’s cognitive needs.

Messages from Risk Communication Studies

Three messages were created in two risk communication studies. Among these messages, all three violate the safety needs at the second dimension; two messages present a threat to the safety needs at the first dimension; one message thwarts the physiological needs; one message involves the violation of esteem needs from others; and none of the messages violate the love and belongingness needs, self-esteem needs, cognitive needs, aesthetic needs, self-actualization needs, or transcendence needs. These messages involve three issues: nuclear energy and distracted driving (Evans, 2011) and an insult to the United States (Rydell et al., 2008).

Evans (2011) examined the effects of emotional appeal and expertise on one’s risk perception using two messages (one focusing on nuclear energy and one dealing with

traffic accidents). Specifically, the first anger-inducing message details the risks of tritium leaking (i.e., cancer) and associates the leakage with production activities by the nuclear energy industry. The health risks present a threat to one's physical safety, and the industry's activities and actions entail unfairness and immorality. The message also indicates that the leakage may contaminate and negatively impact the water supply. The water contamination prevents one from fulfilling his/her physiological needs. Although the anger is still directed at the industry, it is worth mentioning that this message, unlike the messages from health communication studies, does not explicitly point out that the industry is being deceptive and manipulative.

The second anger-inducing message in Evans' (2011) study focuses on the issue of distracted driving. Similar to the messages on distracted driving from political communication studies, this message also thwarts the needs for safety at both dimensions. More specifically, this message emphasizes the severity and prevalence of car accidents caused by distracted driving by indicating that "more than 40,000 Americans have died in car accidents" and that "distractions are the leading cause of motor vehicle crashes" (p. 118), presenting a threat to one's physical safety. Furthermore, this message also indicates that it is unfair and irresponsible for the distracted drivers to endanger themselves and other people. Unfair and irresponsible behavior and the dangerous world created by these distracted drivers thwart one's safety needs at the second dimension.

Rydell et al. (2008) constructed one anger-inducing message to test the effects of group anger on information processing and risk taking. The message involves an insulting essay towards Americans, and the participants are students recruited from one university in California. In order to evoke anger, this insulting essay, purportedly written

by an outgroup member, provides statements that are threatening to the core value of Americans (e.g., “I have very little respect for American people and the values they hold as a society,” p. 1143). Such statements violate the viewers’ need for esteem from others. The essay writer’s being rude and insulting also entails unfairness.

Message from Environmental Communication Study

One message was developed in the context of environmental communication (Skurka, 2019b). To be clear, Skurka’s (2019b) dissertation study involves two anger-inducing messages: one focusing on climate change and one dealing with childhood obesity and soft drinks. The message on childhood obesity was inspired by the message from an earlier study conducted by Skurka (2019a), which has been discussed earlier. Skurka’s (2019a) study does not stem from the dissertation. Instead, Skurka’s (2019a) study preceded and inspired the dissertation (Skurka, personal communication). Thus, for Skurka’s dissertation study, only the message on climate change was included in this review.

The anger-inducing message from Skurka’s (2019b) study describes the blameworthy offense of the fossil fuel companies and accuses them of damaging the environment and strategically misleading the public. The message builds a connection between fossil fuel companies’ and industries’ activities and climate change by emphasizing that “90 fossil fuel and cement companies are responsible for the majority of greenhouse gases emitted since the Industrial Revolution” (Skurka, personal communication). The message also indicates that these companies are fully aware of the fact that their actions are accelerating climate change and the ensuing negative consequences but they decide to conceal this information from consumers and

policymakers with strategic marketing efforts. By describing the companies as deceptive, dishonest, and manipulative and highlighting their transgressions and inappropriate actions, this message involves the violations of safety needs (consistency) and the needs for respect from others, and it directs viewers' anger at the industry.

Message from Crisis Communication Study

One message was developed in the context of crisis communication. Pervan and Bove (2015) examined the effects of anger and empathy on participants' attitudes toward stigmatized service workers in crises. One newspaper article was constructed to induce anger. This newspaper article reports a crisis that a mentally-disabled boy toddler was found wandering on a road outside of the disability center and the service worker did not even notice the child was missing. The message emphasizes the irresponsibility of the service worker by indicating that the mother of the child “was notified 35 minutes after her son had been returned to the center” by a stranger and that the service worker “did not know how long he had been missing for” (Pervan, personal communication). The emphasis on the worker's irresponsible and inappropriate behavior entails the violation of morality, and the vivid descriptions of the devastated mother and the dangers that could have happened to the child present a safety threat to the viewers' family.

Message from Instructional Communication Study

Keltner et al. (1993) investigated the effects of sadness and anger on judgments of social events in the context of instructional communication. The message describes a situation in which a student was mistreated by the teaching assistant (TA). This message violates the safety needs at the second dimension, esteem needs at both dimensions, and the cognitive needs. More specifically, the message describes the TA as unfair and

disrespectful by emphasizing that (a) the student put lots of effort into one paper and the TA gave the student a “C-”, (b) the TA refused to regrade the paper and gave the student insulting comments (“you received the grade you did because the research was shoddy, and the paper was poorly written and thought out”; p. 742), and (c) the TA used the student’s essay as a bad example for class discussion. The unfair and disrespectful actions violate the needs for safety at the second dimension and the needs for esteem from others. In addition, while using and critiquing this student’s essay as a bad example during the class discussion, the TA frequently looked at the student and made the student feel like every student was staring at him/her, presenting a threat to the needs for self-esteem. Because of the unfair and unreasonable behavior of the TA, the student decided to drop the class, a class the student had been interested in and had made the student “feel that [he/she’s] chosen the right major” (p. 742). The withdrawal prevents the student from fulfilling his/her major's requirements, thwarting the needs for education and knowledge.

Preference for Violations of Needs

The third research question deals with the relationship between the study contexts (health, political, risk, crisis, organizational, environmental, and instructional communication) and the use of needs thwarted. Chi-square analyses were first performed. However, more than 20% of cells have an expected count of less than five. As suggested by Kim (2017), I performed Fisher’s exact tests as an alternative. There are four categories for these tests: political ($k = 16$), health ($k = 8$), organizational ($k = 5$), and other contexts ($k = 6$). To be clear, I grouped crisis, risk, instructional, and environmental to make the “other contexts” category. The results (see Table 4) indicate that there is no statistically significant difference in the presence of the violations of needs across

different contexts. One must interpret these results with caution, however, because the number of messages in each category is limited and not equal.

Table 1 Article Context

	Health	Political	Organizational	Risk	Environmental	Crisis	Instructional
Banks and Bell (2013)		✓					
Bruns et al. (2018)		✓					
de los Santos and Nabi (2019)		✓					
Desteno et al. (2004)		✓					
Evans (2011)				✓			
Goldberg et al. (1999)		✓					
Halperin et al. (2011)		✓					
Kaplan (1975)			✓				
Keltner et al. (1993)							✓
Kim (2016)		✓					
Kuhne and Schemer (2015)		✓					
Lecheler et al. (2013)		✓					
Lu (2019)	✓						
Mitchell (1999)	✓						
Mitchell et al. (2001)	✓						
Na et al. (2018)	✓						
Nabi (1998)		✓					
Ness et al. (2017)		✓					
Pervan and Bove (2015)						✓	
Rydell et al. (2008)				✓			
Sangalang et al. (2019)	✓						
Skurka (2019a)	✓						
Skurka (2019b)					✓		
Tagar et al. (2011)		✓					
Turner et al. (2007)			✓				
Turner et al. (2020)			✓				
Underhill (2006)		✓					

Table 2 Violations

Article Index	Message Index	Violation of Physiological Needs	Violation of Safety Needs at the First Dimension	Violation of Safety Needs at the Second Dimension	Violation of Belongingness and Love Needs	Violation of Esteem Needs at the First Dimension	Violation of Esteem Needs at the Second Dimension	Violation of Cognitive Needs
Banks and Bell (2013)	1		✓	✓				
Bruns et al. (2018)	1		✓	✓	✓			
de los Santos and Nabi (2019)	1		✓	✓				
Desteno et al. (2004)	1		✓	✓				
Evans (2011)	1	✓	✓	✓				
	2		✓	✓				
Goldberg et al. (1999)	1		✓	✓	✓	✓	✓	
	2		✓	✓	✓	✓	✓	
Halperin et al. (2011)	1			✓				
	2			✓			✓	
Kaplan (1975)	1		✓	✓		✓	✓	✓
Keltner et al. (1993)	1		✓	✓		✓	✓	✓
Kim (2016)	1		✓	✓				
Kuhne and Scherer (2015)	1		✓	✓	✓			
Lecheler et al. (2013)	1		✓	✓				
Lu (2019)	1	✓	✓	✓				
Mitchell (1999)	1			✓	✓	✓	✓	
Mitchell et al. (2001)	1		✓	✓				
Na et al. (2018)	1		✓	✓				
	2		✓	✓				
	3		✓	✓				
Nabi (1998)	1		✓	✓	✓		✓	
	2		✓	✓				
Ness et al. (2017)	1		✓	✓				
Pervan and Boye (2015)	1			✓	✓			
Rydell et al. (2008)	1			✓			✓	
Sangalang et al. (2019)	1		✓	✓	✓	✓	✓	
Skurka (2019a)	1			✓	✓		✓	
Skurka (2019b)	1			✓			✓	
Tagar et al. (2011)	1		✓	✓		✓	✓	
Turner et al. (2007)	1			✓		✓	✓	
	2		✓	✓			✓	
	3		✓	✓			✓	
Turner et al. (2020)	1	✓	✓	✓			✓	✓
Underhill (2006)	1		✓	✓	✓			✓

Table 3 Types of Violations and Examples

	Example One	Example Two
Violation of Physiological Needs	Tritium leakage from nuclear power sites has contaminated drinking wells and groundwater (Evans, 2011).	Companies and factories and releasing toxic chemicals to the air (Lu, 2019).
Violation of Safety Needs at the First Dimension	A pandemic virus is endangering the population (Na et al., 2018).	Juvenile offenders are violently attacking other people and committing numerous crimes (Nabi, 1998).
Violation of Safety Needs at the Second Dimension	Palestinians are being unfair and unjust during the Israeli-Palestinian negotiation (Halperin et al., 2011).	Because of illegal immigrants, numerous job opportunities for Americans are vanishing and the wages are decreasing (Ness et al., 2017).
Violation of Belongingness and Love Needs	Terrorists are attacking daycare centers, women's health clinics, and churches (Nabi, 1998)	Soda companies are targeting at vulnerable children and are strategically designing their advertisements (Skurka, 2019a).
Violation of Esteem Needs at the First Dimension	Deceptive tobacco products pull previous smokers back to smoking (Sangalang et al., 2019).	Perpetrators scornfully abuse a helpless queer teen for his being who he is (Goldberg et al., 1999).
Violation of Esteem Needs at the Second Dimension	A Muslim political leader makes hostile and disrespectful comments about the United States (Tagar et al., 2011).	An administrator from Michigan State University (MSU) claims that MSU students are an embarrassment and are not ready for the real world (Mitchell, 1999).
Violation of Cognitive Needs	Because of the teaching assistant's inappropriate behaviors, one student withdraws from a required class that he/she has been interested in (Keltner et al., 1993).	The rising cost of tuition prevents students from seeking further education and knowledge (Underhill, 2006).

Table 4 Fisher's Exact Test Results

	V	<i>p</i>
Violation of physiological needs	.29	.21
Violation of safety needs (physical security)	.44	.08
Violation of belongingness and love needs	.31	.41
Violation of esteem needs (self)	.18	.79
Violation of esteem needs (from others)	.46	.06
Violation of cognitive needs	.40	.12

Note. No statistics are computed for violation of safety needs (consistency), aesthetic needs, self-actualization needs, and transcendence needs, because each of them is a constant.

CHAPTER 5: DISCUSSION

There is an increasing use of anger appeals in persuasive communication across different contexts, and a recent meta-analytical study (Walter et al., 2019) supports the effectiveness of this message design strategy. However, scholars have yet to fully explore the causes of anger. Understanding what causes anger in people is necessary for the development of anger-inducing messages. Guided by Maslow's hierarchy of human needs model, the current study systematically reviewed communication studies on anger appeals to explore the violations of needs that have been applied to elicit anger to give an overview of the current stage of anger-evoking message design in terms of the message content, which can inform the development of recipes for anger appeals.

Message Design Discussion

Discussion of Results (RQ1)

Research question one asked about the types of needs that are thwarted to elicit anger in studies on anger appeals. Through the lens of Maslow's hierarchy, the violations of safety needs at the first dimension (74.3%) and second dimension (100%) are used most frequently in anger-inducing messages. Preventing the receipt of esteem from others was present in about half of the messages (45.7%), following by messages threatening one's needs for belongingness and love (28.6%), messages thwarting one's need for self-esteem (22.9%), messages that threaten one's cognitive needs (11.4%), and messages that prevent one from fulfilling physiological needs (8.6%). There was an absence of violations of aesthetic needs, self-actualization needs, and transcendence needs.

Messages that violate the safety needs at both dimensions often reflect a transgression-wrongdoer pattern (i.e., one's needs are not fulfilled and there is a

blameworthy target). The descriptions of transgressions involve a violation of safety needs at the first dimension (e.g., health, resources, and physical safety), and the highlight on the intent and behaviors of wrongdoer violates the needs for safety at the second dimension (e.g., a just, fair, and orderly environment). For example, Evans's (2011) message on distracted driving presents viewers with the severity and prevalence of the consequences of texting while driving (transgression), which involve a threat to the physical security of the viewers, and blames the distracted drivers (target of blame) for endangering other people and being irresponsible and unfair, which thwarts one's needs for safety at the second dimension. This transgression-wrongdoer pattern corresponds to the "other blame" argument advocated by appraisal theorists (e.g., Smith & Lazarus, 1993), which places an emphasis on both goal-impeding events and a target of blame. Communication scholars, when designing anger-inducing messages, may follow this pattern and the way this pattern violates the needs.

Based on the results, there is an absence of violations of aesthetic needs, self-actualization needs, and transcendence needs, which are the top three levels of needs in Maslow's hierarchy. The absence of these three levels of needs and the presence of other needs, together, indicate that anger message design scholars have been focusing on using more basic and fundamental needs for message development and that they have yet to fully explore the potential that the violations of human needs/goals from higher levels have to elicit anger. Thus, I would suggest that future studies may select the violations of these three types of needs as the anger-inducing themes for their messages. For example, scholars in environmental communication may try to produce messages that depict the destruction of natural beauty as thwarting one's aesthetic needs to induce anger.

Discussion of Results (RQ2)

Research question two asked how anger appeal studies in different contexts (health, political, risk, crisis, organizational, environmental, and instructional) applied the violations of needs. On the basis of the previous analyses of messages from these different contexts, messages from health communication studies frequently involve the violations of safety needs at the first dimension (75%) and second dimension (100%). These messages tend to present a threat to the viewers' security of health and attribute this threat to higher-level organizations, such as industries, governments, and others. These messages also tend to emphasize the inappropriate actions or intent of these organizations and describe them as deceptive, unethical, and unfair. Such emphasis and descriptions involve the violations of the safety needs at the second dimension and the needs for respect from others. For example, Sangalang et al.'s (2019) message blames the tobacco companies and industry for disguising their intent and producing deceptive "organic" and "healthy" tobacco products, which pull previous smokers back to smoking. Lu's (2019) message indicates the negative health impacts caused by industrial air pollution and emphasizes the industry's pursuit for maximizing the profits and ignoring the negative consequences. It is wise to direct the anger toward the organizations instead of the "victims." If scholars design messages targeted at current smokers and the messages blame the smokers for smoking and endangering their health, it is more than likely the messages will result in reactance. Thus, it is recommended for future studies to follow this "blame-industry" tendency to prevent backfires.

Similar to the messages from health communication studies, the 16 anger-inducing messages in the domain of political communication also violate the safety needs

at both dimensions frequently. Among these messages, all of them thwart the needs for safety (consistency), and 14 messages present a threat to the needs for physical safety. These messages tend to operationalize the violation of safety needs (consistency) as an unstable, less reliable, and chaotic environment, and the violation of physical safety needs is usually operationalized as a direct threat to one's life, physical security, and resources. For example, Lecheler et al.'s (2013) message indicates that having Bulgaria and Romania as partners has been damaging the Dutch market and people's financial resources and bringing chaos to the entire European economic system. The threat to the financial resources violates the viewers' (Dutch students') needs for safety at the first dimension, and the chaotic European economic system thwarts one's safety needs at the second dimension given concerns over justice, fairness, and morality.

Discussion of Results (RQ3)

Research question three asked whether the use of violations of certain types of needs to elicit anger differed across contexts. The results indicate that there is no significant difference in the use of the violations of needs across different contexts. Thus, one may argue, through the lens of Maslow's hierarchy, communication studies in different contexts produce the messages similarly in terms of the content. However, as mentioned above, the number of messages in each context is not ideal for Chi-square analysis, and therefore one must interpret this result with caution. Whether this similarity is beneficial or not is open for debate. I would suggest that scholars from different contexts should try to apply the types of needs that fit their contexts. For example, environmental communication studies may use the violation of aesthetic needs more frequently. Organizational communication studies (if the organizations are universities)

and instructional communication studies can apply the violation of cognitive needs by presenting an issue that thwarts students' desire for further education and knowledge. In addition, because the number of messages in the contexts of environmental, risk, crisis, and instructional communication is limited, message design scholars in these contexts should devote more attention to anger appeals.

Other Issues

Some messages examined in the current review involve more than one topic. For example, Desteno et al.'s (2004) message (185 words) covers three issues: individuals wrongly taking advantage of the healthcare system and health resources, criminals escaping, and the growing size of traffic delays. The description of each issue is limited in the message, especially for the traffic issue. What Desteno et al. provide with regard to the traffic issue is more like a one-sentence summary. The downside of involving multiple issues in one message is that message designers may not be able to provide enough details with regard to the issue or achieve certain types of manipulations in accordance with the study's interest. Because of the limited information about the traffic delay issue, what makes viewers angry may be the topic itself, instead of the message. If message designers are able to provide detailed descriptions with regard to multiple issues in one message and manipulate certain aspects, they need to take into consideration the effects of message length and viewers' attention span.

Another issue with regard to message design is that for several studies, the topic in the anger-inducing message is not related to the behavior promoted in the persuasive message. In other words, in these studies, anger is not elicited in direct response to the persuasive messages. For example, Mitchell et al. (2001) induced anger in student

participants with a video about parking issues on campus and then presented the participants with persuasive arguments promoting bone marrow donation. This approach may help researchers disguise the study purposes, but the difference between the effects of integral anger and the effects of non-integral anger is open for debate.

Discussion of Maslow's Hierarchy of Human Needs

As mentioned before, the categorization of the violations of needs is guided by Maslow's hierarchy of human needs model. Although this is the first study that applies this model in the field of message design, I argue that this model is a good fit for this review. Maslow (1943, 1954, 1970) provided clear definitions and examples with regard to almost every level of needs in the hierarchy, which facilitates the coding procedures of this review. One critique is that Maslow could have provided more clarifications and concrete examples for the transcendence needs, which involve a spiritual and religious aspect and a sense of meaningfulness. Future scholars who are interested in this model should further explore this level of needs.

For future message design studies that use this model, it is recommended for these studies to assign a bigger role to the audiences. Similar to the sensation-seeking targeting approach (developing high sensation value message for high sensation seeker and low sensation value message for low sensation seeker; Palmgreen & Donohew, 2010), an anger appeal message targeting physiological needs may work well for people who value this type of need most. On the other hand, people who are meeting higher level needs may find anger appeals that target those needs more effective. In other words, I suggest that future studies should explore the interaction effects between the types of needs violated and audience characteristics on message effects.

Limitations and Future Directions

I acknowledge that there are two primary limitations in this review. As mentioned above, some articles that meet all of my inclusion criteria do not provide enough details with regard to the stimuli used. I reached out to the authors of these articles, but I was still not able to obtain the stimuli from five articles. I would recommend that future studies on message design should provide their message stimuli in the article (or at least as an online supplement), as well as detailed descriptions about the message construction and development. Specifically describing how messages were designed to elicit anger, drawing on Maslow's hierarchy, would also be helpful for future message designers.

The second limitation is that this study, as a systematic review, focuses on the synthesis and categorization of the needs thwarted in anger-inducing messages. It does not aim to investigate which types of needs, when thwarted, are more likely to elicit anger in viewers, which, in turn, influences persuasive outcomes. Thus, I encourage future scholars to conduct meta-analytical studies to examine the relationships between different types of needs violations and anger intensity. The results of such studies would definitely inform the further development of the recipe for anger appeals.

Contributions

This systematic review has two theoretical contributions and one practical application. First, this review contributes to the literature on anger appeals and message design. As suggested by Walter et al. (2019), there is a need for recipes for anger appeal implementations. The current review contributes to the development of the recipes by synthesizing and categorizing what types of thwarted needs have been applied in communication research. The results of this review also give scholars an overview of the

current stage of anger-evoking message design in terms of the message content. For example, this review can inform scholars in health communication that (a) the most frequently used violations of needs in their field are the violations of safety needs at both dimensions and (b) anger-inducing messages in the health context tend to present a threat to the security of viewers' health and build a connection between this threat and the unjust, unfair, and unethical behaviors of organizations. The second theoretical contribution is the application of Maslow's hierarchy of human needs model in the field of communication. As mentioned before, this review is the first study that applies this model to the area of message design. How this model is utilized in this study can inform communication scholars who are interested in human motivation or would like to apply this model to guide anger appeal development.

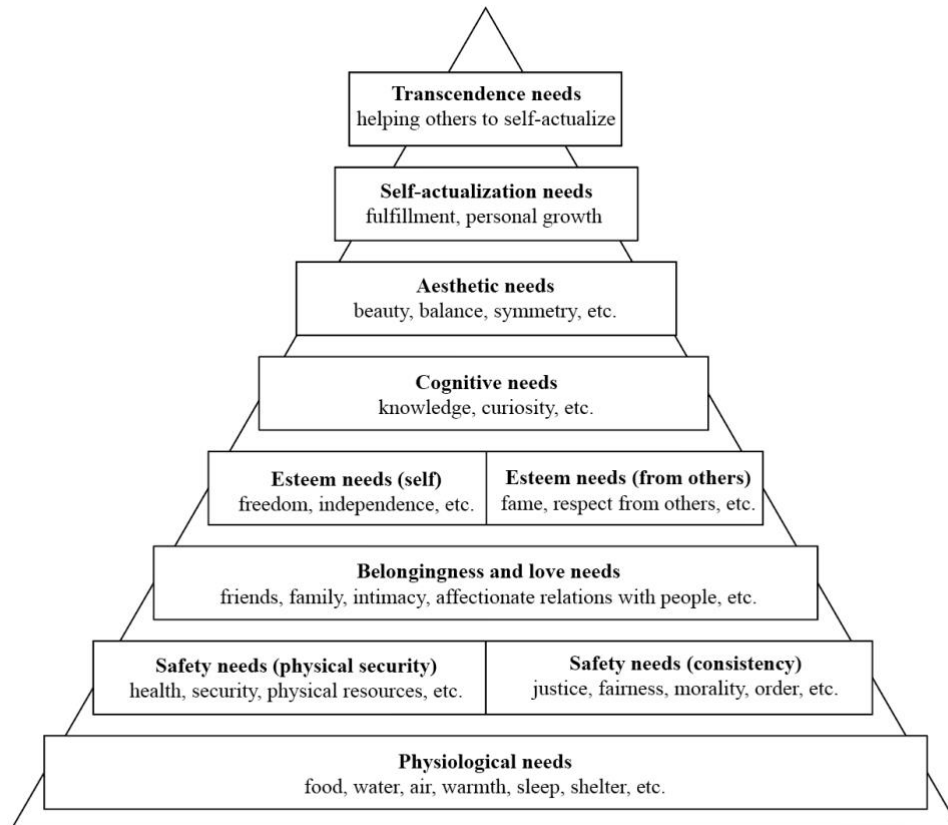
This systematic review entails one practical application: The study results can inform media practitioners or future campaign designers who would like to use anger appeals. For example, the transgression-wrongdoer pattern reflected by most messages examined in this review can inform message designers of future campaigns with regard to the message structure and main elements. The detailed analyses of messages, as well as the aforementioned tendencies, can guide the designers in terms of (a) what violations of needs may be used in the "transgression" part and how to operationalize these violations and (b) what violations of needs may be used in the "wrongdoer" part and how to operationalize these violations.

Conclusion

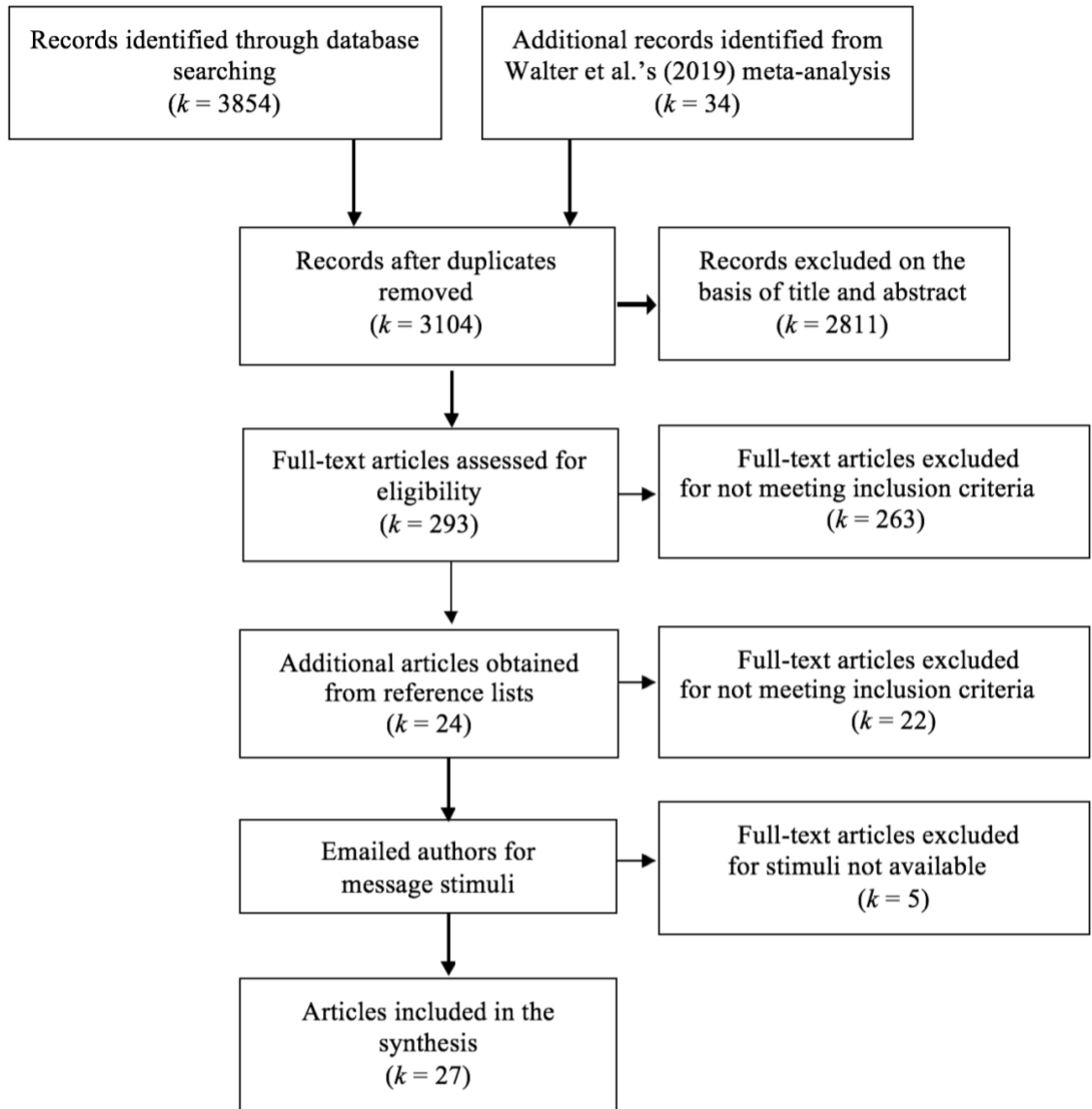
Despite the increasing use of anger appeals in persuasive communication research, scholars have yet to fully explore the causes of anger and apply those causes to

guide their message design. Guided by Maslow's hierarchy of human needs model, the current systematic review examined, categorized, and synthesized the violations of needs that have been used in previous communication studies to elicit anger in participants. The results of the current review shed light on the literature on anger appeals and can inform media practitioners and campaign designers who wish to use anger appeals in their work.

Appendix A



Appendix B (Flow Diagram)



Appendix C (Codebook)

Variable Name	Definition	Example	Code
Physiological needs	The need to maintain and stabilize a normal state of blood flow. It deals with the water, salt, sugar, protein, fat, calcium and other minerals, vitamins, hormones, hydrogen-ion level (pH), oxygen, and constant temperature of the blood.	Food, water, air, warmth, sleep, sex, shelter	1 - Presence of violation 0 - Absence of violation
Safety needs (physical security)	The need to maintain the security and protection of one's body, health, and resources in emergencies such as wars, natural catastrophes, and disease outbreaks.	Health, physically safe environment, physical resources	1 - Presence of violation 0 - Absence of violation
Safety needs (consistency)	The desire to have a safe, orderly, predictable, reliable, consistent, and organized world. The desire to avoid unexpected, unmanageable, or dangerous events.	Justice, fairness, morality, law, order, structure Steady employment, a variety of insurance, a saving account	1 - Presence of violation 0 - Absence of violation
Belongingness and love needs	The need to give and receive love (i.e., love and be loved) <i>Note: love is not equivalent with sex and that sex can be regarded as a physiological need.</i>	Friends, family, affectionate relations with people, intimacy, a sense of belonging, people one can rely on. <i>Note: A threat to the health of one's family is a threat to the belongingness and love needs, not the safety needs (Pay attention to who the agent is).</i>	1 - Presence of violation 0 - Absence of violation
Esteem needs (self)	The desire for strength, achievement, adequacy, mastery and competence, confidence in the face of the world, independence, and freedom.	Self-respect, self-satisfaction, feelings of worth, freedom, independence, self-confidence, self-esteem	1 - Presence of violation 0 - Absence of violation
Esteem needs (from others)	The desire for reputation, prestige, or respect from others	Status, fame and glory, dominance, recognition, attention, importance, dignity, appreciation. Respected by others People have a high opinion of you	1 - Presence of violation 0 - Absence of violation
Cognitive needs	This level of needs deals with human curiosity and cognitive impulses. The desire to know, to understand, and to explore	Acquiring knowledge and systematizing the universe Learning, philosophizing, creating explanations, experimenting	1 - Presence of violation 0 - Absence of violation
Aesthetic needs	The needs for symmetry, balance, closure, system, and beauty	Beauty, symmetry, simplicity, completion, succinctness, parsimony, elegance, precision, neatness	1 - Presence of violation 0 - Absence of violation
Self-actualization needs	Individuals' desire for self-fulfillment and their tendency to reach their full potential	An artist has the tendency to create the best artwork One's life has meaning	1 - Presence of violation 0 - Absence of violation
Transcendence needs	The need to further a cause beyond the self and to experience a communion beyond the boundaries of the self through peak experience	Help others to self-actualize	1 - Presence of violation 0 - Absence of violation
Others	Other types of needs being thwarted		0 - Absence of violation If there is a presence of violation of other types of needs, write a note.

Context	The context of the study	Health, risk, advertising, crisis, political, environmental, instructional, organizational	Write down the context
Topic	The message topic	Binge drinking, substance use disorder, etc.	Write down the message topic

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*Used in the systematic analysis

Vitae

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EDUCATION

University of Kentucky, Lexington, KY
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Master of Arts in Communication

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MANUSCRIPT UNDER REVIEW

Tsay-Vogel, M., **Chen, T.**, Hong, A., Meekajit, P., Wang, Y., & Liao, Z. (under review).
The prosocial and cathartic potential of immersive media on eudaimonic entertainment experiences. Manuscript submitted to *Computers in Human Behavior*.

MANUSCRIPTS IN PREPARATION

Chen, T., & Harrington, N. G. Setting the public health agenda in mainland China: News articles related to human immunodeficiency virus.

Chen, T. Recipes for anger appeal: A systematic review.

Chen, T., & Fischer, L. Applying the integrative model of behavioral prediction to explain and predict eco-friendly behavior among college students.

Giger, J. T., Barnhart, S., Shapiro, R., **Chen, T.**, Feltner, F., Slone, M., ... Windsor, L. Are subjective wellbeing mediators linking social media usage and ehealth literacy in Appalachian adolescents?

CONFERENCE PAPERS

Xia, S., & **Chen, T.** (accepted). Influences of journalist gender on framing of pickup artists: A content analysis. Paper to be presented at 2020 International Association for Media and Communication Research Conference, Beijing, China.

Jarod, G., Barnhart, S., Feltner, F., Slone, M., & **Chen, T.** (accepted). Are happiness and sadness specific pathways linking gender and life satisfaction in adolescents living in a rural U.S. region? Paper to be presented at 2020 International Association of Schools of Social Work Conference, Rimini, Italy.

Roberson, L., **Chen, T.**, Drobney, C., & Kowalski, N. (2019, November). Influence of journalist gender and political ideology on attribution of responsibility in news coverage of sexual assault victims - A content analytical comparison of the Clarence Thomas and Brett Kavanaugh accusations. Paper presented at 2019 National Communication Association Conference, Baltimore, MD.

Cliggett, L., **Chen, T.**, Fawcett, K., Kilgore, G., Mays, A., Orzolek, L., & Swab, J. (2020, February). Ten Years of DOPE: In the classroom and beyond. Abstract presented at 2020 Dimensions of Political Ecology Conference, Lexington, KY.